

**Notice of Allowability**

Application No.

10/823,822

Examiner

Leigh Marie Garbowski

Applicant(s)

LIAW, JHON JHY

Art Unit

2825

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed 04/15/2004.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date (see attached).
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Steven E. Koffs on 07/19/2006.

The application has been amended as follows:

#### **CLAIM 11**

--group of-- was inserted after "second" [line 1].

#### **CLAIM 14**

--within one of the first and second groups-- was inserted after "features" [line 1].

The following changes to the drawings have been approved by the examiner and agreed upon by applicant: Figures 1A, 1B, and 1C were labeled --(PRIOR ART)--. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

### ***Allowable Subject Matter***

Claims 1-21 are allowed.

The following is an examiner's statement of reasons for allowance: although the prior art of record discloses the methods for conducting OPC as cited below, the prior art of record does not disclose, teach, or suggest, as per claim 1, a method for conducting OPC on at least two features, particularly comprising incorporating a second OPC pattern to the end of the second feature toward a second direction that is substantially opposite to the first direction, in combination with all of the features recited in their totality; as per claim 8, a method for conducting OPC on at least two groups of features, particularly comprising incorporating a second OPC pattern to the first ends of the features of the second group toward a second direction that is substantially opposite to the first direction, in combination with all of the features recited in their totality; and as per claim 15, a method for conducting OPC on at least three features, particularly comprising wherein a protruding portion of the first OPC pattern points to a direction that

is substantially opposite to directions pointed to by protruding portions of the second and third OPC patterns so that an end-to-end space between any two features can be minimized, in combination with all of the features recited in their totality.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bendik et al. [U.S. Patent #6,673,638 B1] disclose a paired line shortening array with asymmetric correction [column 12, line 14-column 13, line 26]. Zhang et al. [U.S. Patent #6,753,115 B2] disclose allocating bias between a set of interacting edges [column 1, line 63-column 2, line 9; column 7, lines 7-23]. Eurlings et al. [U.S. Patent #6,875,545 B2] disclose assist features arranged in orthogonal directions to one another [column 12, line 52-56]. Laidig et al. [U.S. Patent #6,670,081 B2] disclose determining and adjusting the position and size of serifs [column 6, line 64-column 7, line 13, 57-column 8, line 5]. Misaka et al. [U.S. Patent Application Publication #2004/0107410 A1] disclose modifying hammerhead patterns that violate placement rules [0103, 0104]. Bothra [U.S. Patent #6,189,136 B1] discloses adding corrections to the ends of features [column 7, lines 63-67; column 8, lines 35-37]. Liu et al. [U.S. Patent Application Publication #2005/0022150 A1] disclose adding first and second assist features [0033, 0035]. Tzu et al. [U.S. Patent #6,631,307 B1] disclose the addition of two sets of serifs [column 3, lines 25-30, 36-47, 56-67]. Lu [U.S. Patent #6,303,253 B1] discloses determining the position, size, and shape of serifs [column 5, lines 43-51].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Marie Garbowski whose telephone number is 571-272-1893 and e-mail is Leigh.Garbowski@uspto.gov. The examiner can normally be reached on days.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LEIGH M. GARBOWSKI  
PRIMARY EXAMINER

Fig. 1A  
(PRIOR ART)

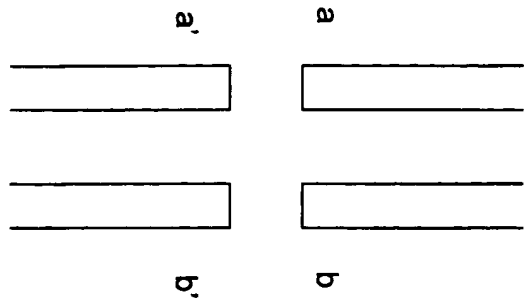


Fig. 1B  
(PRIOR ART)

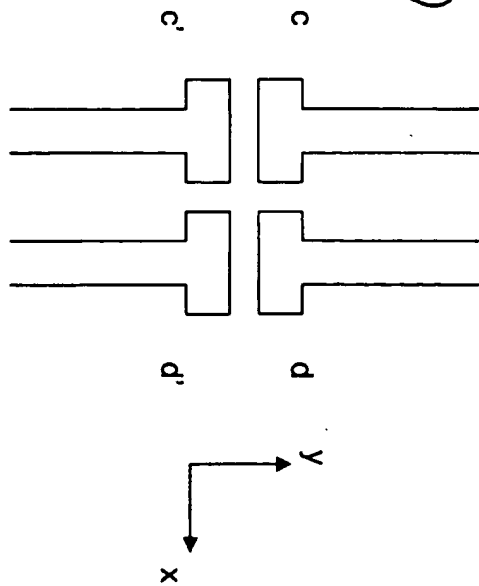


Fig. 1C  
(PRIOR ART)

